

1. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_4(3x + 7) + 6 = 3$$

- A.  $x \in [28.33, 32.33]$
  - B.  $x \in [22.67, 27.67]$
  - C.  $x \in [-5.33, -0.33]$
  - D.  $x \in [19, 23]$
  - E. There is no Real solution to the equation.
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2. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$9 = \ln \sqrt[3]{\frac{21}{e^{9x}}}$$

- A.  $x \in [-2.05, -1.13]$
  - B.  $x \in [-2.79, -2.34]$
  - C.  $x \in [-1.6, -0.88]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
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3. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x + 5) + 1$$

- A.  $(-\infty, a), a \in [-1.1, 0.5]$
  - B.  $[a, \infty), a \in [-5.1, -1.3]$
  - C.  $(-\infty, a), a \in [0.6, 1.9]$
  - D.  $[a, \infty), a \in [3, 5.2]$
  - E.  $(-\infty, \infty)$
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4. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x+6} - 9$$

- A.  $(-\infty, a), a \in [-15, -5]$
  - B.  $[a, \infty), a \in [6, 12]$
  - C.  $(-\infty, a], a \in [-15, -5]$
  - D.  $(a, \infty), a \in [6, 12]$
  - E.  $(-\infty, \infty)$
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5. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$16 = \sqrt[5]{\frac{25}{e^{9x}}}$$

- A.  $x \in [0.5, 1.6]$
  - B.  $x \in [-0.4, 0]$
  - C.  $x \in [-10.8, -7.4]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
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6. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x-2} + 6$$

- A.  $(-\infty, a], a \in [3, 7]$
  - B.  $(-\infty, a), a \in [3, 7]$
  - C.  $[a, \infty), a \in [-9, 4]$
  - D.  $(a, \infty), a \in [-9, 4]$
  - E.  $(-\infty, \infty)$
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7. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$5^{5x-2} = 216^{3x-4}$$

- A.  $x \in [-0.75, 1.25]$
  - B.  $x \in [-2, 0]$
  - C.  $x \in [2.26, 4.26]$
  - D.  $x \in [-13.14, -5.14]$
  - E. There is no Real solution to the equation.
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8. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x - 6) - 6$$

- A.  $(-\infty, a], a \in [3, 7]$
  - B.  $[a, \infty), a \in [-7, -5]$
  - C.  $(a, \infty), a \in [3, 7]$
  - D.  $(-\infty, a), a \in [-7, -5]$
  - E.  $(-\infty, \infty)$
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9. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$3^{-3x-5} = \left(\frac{1}{343}\right)^{-2x+5}$$

- A.  $x \in [-11, -8]$
  - B.  $x \in [-0.67, 1.33]$
  - C.  $x \in [17.7, 26.7]$
  - D.  $x \in [0.58, 3.58]$
  - E. There is no Real solution to the equation.
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10. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_3(4x + 5) + 6 = 3$$

- A.  $x \in [-3.24, 4.76]$
  - B.  $x \in [2.5, 8.5]$
  - C.  $x \in [-8, -7]$
  - D.  $x \in [-7.5, -2.5]$
  - E. There is no Real solution to the equation.
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